August-23-12 1:35:59 PM

Item ID: Revision ID:	D407-667-105TRN		Accept	*N900	040	100)* s	Setup Start	*N:	S1*	
, p	Crosstube Turning Detail :							Stop	*N	S2*	
Start Date: Required Date:	23/08/2012 Start Qty: 06/09/2012 Req'd Qty:	•		Cust Item I Customer:	D:						
Reference:		•									,
Approvals:	Process Plan: MLJ	Date: 12/08	23 Tooling:	D	ate:		R	Run Størt	!/	R1*	50
	QC:	Date:	SPC (Y/N):	D	ate:			Stop	*N	R2* .	
Sequence ID/ Work Center II	Operation Description		Set Up/s	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp	
Draw Nbr	Revision Nbr									•	
D407-667-145	Rev C									•	
100	1		0.00								
100	MORI SEIKI C	NC LATHE LARGE						Ø	120	12-9	-2
Mori Seiki **	, Me	mo	0.00								
Mori Seiki CNC Lat	the Large 1-Fi	ill tube with sand & install plug	gs DT8673 on both ends as pe	er Folio FA249				'			
	· 2-T	urn first side as per Folio FA24	9							and the second s	
	3-R	lend transition lines only, **do	not sand whole tube**					وي ميمنسند يهني		••• ••• •• •• •• •• •• •• •• •• •• •• ••	
		11	, , ,		•			-			K.
-		LIO REV: AA					, •		* - •.	•	
٠		se mill bastard file, brush file re	peatedly with file card.				٠ بسي	- J~ `	i.v.		
-	*Do	not use sandpaper coarser that	n 320 grit.	es i			a Tarini. Taning in	The second second	ž ý		
	,		•					. /	-		
110	QC1- Inspect di	mensions to dimension sheet	0.00		,			# Q	KE	ij a	
110	·				Total Control			1		· · · · · · · · · · · · · · · · · · ·	
QC	Me	mo	0.00					7			
Quality Control			•	•							

NCR:	Voc	1	Mo
NCR:	Yes	/	No

WORK ORDER NON-CONFORMANCE / UPDATE

DOA: Date:	12/	09	120	٥	
			`)		

							•		QA Closed:	Date:	12/9/21
Work Orde	er: 8-0	47	7		DISPOSITION			AGAINST DE	PARTMENT	/PROCESS	
Part I	vo. 12-1	832	- los	OTRN	Rework Scrap Use-as-is Work Order Update	1	Skid-tube Machining noforming Large Fab	Crosstube Small Fab Finishing Composite	Pro	Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root				Descri	ption of work order update	Initial	Act	tion	Sign &		
Cause	Date	Step	Qty		or Non-conformance	Chief Eng	Descr	ription	Date	Verification	QC Inspector
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier Training	n/ofia	IW	1	Ciff of	tubl is under oberance. 45" - 2.234"	12/8/29	_		12/6/24)	750 12-9-4	1959 100/18
Unapproved											
						AULT CATE	GORY				
Landi	ng Gear Bending Centre No Cracks	ot Conce	ntric to	o/s	General Bend BOM/Route Broken/Damaged	Grain Hardwa Inspecti	re on Incomplete		Ovalized Over/Under Part Incorre	—	Pressure/Forced Temperature/Cure Weld
	Crushed/C	·			Burrs Contamination	Mainte		Unclear	Part Lost/M Part Moved	· L.	Wrong Stock Pulled
	Heat Trea		Tube		Countersink Cut Too Short	Mislabe Misread			Positioned V Power Loss/		Other
	Ripples in				Drill Holes	Offset		<u> </u>	MATORIAL		
	Torque W		xtrusio	n	Drawing	Out of 0	Calibration		1. myl v m h		<u>~</u>
	Turning Se	equence			Finish	Out of S	Sequence				
			Folio		Dimensions						

August-23-12 1:35:59 PM

Item ID: Revision ID: Item Name:	Crosstube Tur			Accept	*N900	1 040	100)* s	Setup Star Sto	177	S1* S2*
Start Date: Required Date Reference:	23/08/2012 : 06/09/2012	Start Qty: 1.00 Req'd Qty: 1.00	*1* *1*		Cust Item Customer						
Approvals:	Process Pla	in:				Date:		F	Run Stai Sto	1/1	R1* R2*
Sequence ID/ Work Center I 120 *120* Mori Seiki Mori Seiki CNC La		2-Blend tran *Use mill be *Do not use FOLIO REV DWG REV 3-Remove s	nd side as per Folio FA24 nsition lines only, **do no astard file, brush file repe. e sandpaper coarser than 3 /: and and plugs	ot sand whole tube**: atedly with file card. 20 grit rating stylus as per Dwg D2	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp MW 12/08
130 *130* QC Quality Control		QC1- Inspect dimension Memo	s to dimension sheet	0.00				(_			

NCR: Y	es / No				WORK ORDER NON-	CONFO	DRN	MANCE / UPI	DATE			
										QA Closed:	Date	
Work Orde	er:				DISPOSITION				AGAINST DE	PARTMENT	PROCESS	
Part N					Rework Scrap Use-as-is Work Order Update]]]]	N nerm	Skid-tube Machining noforming Large Fab	Crosstube Small Fab Finishing Composite	4	Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root				Descri	ption of work order update	Initia	al	Act	ion	Sign &		
Cause	Date	Step	Qty	(or Non-conformance	Chief I	Eng	Descr	ription	Date	Verification	QC Inspector
Doc/Data									,			
Equip/Tooling												
Operator												
Material												
Setup			1 1			j						
Other												
Process			•									
Supplier]]								1	
Training												
Unapproved												
						AULT C	ATEC	GORY				
Landin	ng Gear			_	General					_	_	_
]	Bending				Bend	Gra	in			Ovalized	L	Pressure/Forced
1	Centre N	ot Conce	ntric to C)/s	BOM/Route	Har	dwa	re		Over/Under	tolerance	Temperature/Cure
	Cracks				Broken/Damaged	Insp	pecti	on Incomplete		Part Incorre	ct	Weld
. [Crushed/	Çrimped.			Burrs	Inst	ructi	ions Incomplete/L	Jnclear	Part Lost/Mi	ssing	Wrong Stock Pulled
[Cuffs			<u> </u>	Contamination	Ma	inte	nance		Part Moved		•
	Heat Trea	at			Countersink	- Mis	labe	led		Positioned V	Vrong	<u>.</u>
	Inspectio	n Strip in	Tube		Cut Too Short		read			Power Loss/	Surge	Other
	Ripples in	n Bend			Drill Holes	Offs	set-				,	٠
İ	Torque V	Vaves in E	xtrusion	. [Drawing	Out	of C	Calibration			a 1	

Out of Sequence

Outside Dimensions

DQA:

Date:

Turning Sequence

Wave/Twist in Tube

Finish

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

August-23-12 1:35:59 PM*

Required Date: 06/09/2012

Item ID: D407-

D407-667-105TRN

Crosstube Turning Detail

Accept

N900040100

Setup Start

NS1

Stop *

*****C2I/

Item Name: Start Date:

Revision ID:

23/08/2012

Start Qty: 1.00 Reg'd Qty: 1.00 *1*

Cust Item ID:

Customer:

Reference:

Approvals:

Process Plan:

Date: _____

Tooling:

Date:

Run Start

NR1

(

QC:

Date:

SPC (Y/N):

Date:

2

*NR2

Sequence ID/ Work Center ID Operation Description Set Up/ Run Hours Tool ID

Tool # Plan Code Accept Qty Reject Qty Reject Insp. Number Stamp

140

140

QC Quality Control

Memo

QC8- Inspect parts - second check

0.00

JW

12-9-4

145

145

Crosstubes

Memo

0.00

0.00

Crosstubes

GRIND ONLY TRANSITION LINES SMOOTH LONGITUDE WAY.

12-9-14

150

150

HandFXtube

Hand Finishing Crosstubes

Memo

0.00

0.00

1- PRESSURE WASH X-TUBE INSIDE AND OUT

2- ACID ETCH X-TUBE INSIDE AND OUT. USE RED SCOTCH BRITE

De 12/09/17

NCR: Y	es /	No				WORK ORDER NON-C	CON	IFORI	MANCE / UPI	DATE			
				·							QA Closed:	Date):
Work Orde	er:					DISPOSITION	,			AGAINST DE	PARTMENT	-	
Part N						Rework Scrap Use-as-is Work Order Update			Skid-tube Machining noforming Large Fab	Crosstube Small Fab Finishing Composite	1	Water Jet d. Eng. Coor. e/Packaging Supplier	Engineering Quality Other
						'	,			٠ ـــــ	J	,,	
Root Cause		ate	Step	Qty		ption of work order update or Non-conformance	I	nitial ief Eng	Act Descr	ion iption	Sign & Date	Verification	QC Inspector
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier Training Unapproved													
Landii	ng Gear					General	HUL	CATE	JORY				
	Ber Cer Cra Cru Cuf Hea Insp	nding otre Not cks shed/C fs ot Treat pection ples in	Strip in Bend	Tube		Bend BOM/Route Broken/Damaged Burrs Contamination Countersink Cut Too Short Drill Holes		•	ion Incomplete ions Incomplete/L enance eled	Jnclear	Ovalized Over/Under Part Incorred Part Lost/Mi Part Moved Positioned V Power Loss/	ct ssing Vrong	Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled Other
	Tor	que Wa	eves in F	xtrusio	n I	Drawing	1 1	Out of (Calibration				

Out of Sequence
Outside Dimensions

DQA:

Date:

Turning Sequence

Wave/Twist in Tube

Finish

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

August-23-12 1:35:59 PM

Item ID:

D407-667-105TRN

Accept

N900040100

Setup Start

Revision ID:

Item Name: Crosstube Turning Detail

Cust Item ID:

Customer:

Start Date: Required Date: 06/09/2012

23/08/2012

Start Qty: 1.00 Req'd Qty: 1.00

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/ Work Center ID Operation Description

Set Up/ **Run Hours** Tool ID

Tool # Plan

Code

Accept Qty

Reject Reject Otv

Insp. Number Stamp

160

160

OC Quality Control Memo

QC5- Inspect part completeness to step on W/O

0.00

170

170

Packaging

Packaging Packaging

Memo

0.00

0.00

Identify and stock in Kanban rackLocation:

180

QC21- Final Inspection - Work Order Release

0.00

120

Memo

0.00

Quality Control

											DQA:	Date	a:	
NCR:	Yes	/ No				WORK ORDER NON-	COI	NFOR	MANCE / UPDATE		QA Closed:	Date		
T							-	Γ			QA Closed.	Date		
Work Ord	er:					DISPOSITION			AGA	INST DE	PARTMENT	PROCESS		
Part	No.			-		Rework Scrap Use-as-is Work Order Update			Skid-tube Crossi Machining Small noforming Finis Large Fab Compo	l Fab		Water Jet d. Eng. Coor. re/Packaging Supplier		Engineering Quality Other
Root					Descri	ption of work order update	Т	<u>I</u> Initial	Action		Sign &		\top	
Cause		Date	Step	Qty		or Non-conformance	1	nief Eng			Date	Verification		QC Inspector
Doc/Data									•				1	
Equip/Tooling														
Operator														
Material								7A-						
Setup							•	ā†						
Other								· 🗫 💲						
Process				·									ļ	
Supplier	\square													
Training	Ш												1	
Unapproved							1							
				**		F	AUL	LT CATE	GORY					·
Landi						General		-						
	oxdot	Bending				Bend		Grain			Ovalized		Pr	essure/Forced .
	\sqsubseteq	Centre No	ot Concer	ntric to C)/S	BOM/Route	L	Hardwa	re		Over/Under	tolerance	Te	mperature/Cure
]	L,	Cracks				Broken/Damaged		Inspecti	on Incomplete	L	Part Incorred	ct	w	eld
		Crushed/	Crimped,			Burrs		Instruct	ions Incomplete/Unclear		Part Lost/Mi	ssing	lw	rong Stock Pulled!

Maintenance

Out of Calibration

Out of Sequence

Outside Dimensions

Mislabeled

Misread

Offset

Part Moved

Positioned Wrong

Power Loss/Surge

Other

Contamination

Countersink

Cut Too Short

Drill Holes

Drawing

Finish

Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Cuffs

Heat Treat

Inspection Strip in Tube

Torque Waves in Extrusion

Picklist Print

August-23-12 1:36:06 PM

Work Order ID: 89477

89477

Parent Item:

D407-667-105TRN

Parent Item Name: Crosstube Turning Detail

D407-667-105TRN

Start Date: 23/08/2012

Required Date: 06/09/2012

Start Qty: 1.00

Required Qty: 1.00

Comments:

IPP Rev:a08.02.28 new issueEC

IPP Rev B 08.04.02 Removed polish EC verified by: DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Sey ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status	-
D6010-115		Manufactured	No			110	Each	25.0000	1	1				-
D6010-11	5								**					

Crosstube Material

Loc Qty **Location** Loc Code LG 25 11 14

KC 12-8-24

											DQA	: Date	::
NCR:	Yes	/ No				WORK ORDER NON-O	COI	NFORM	MANCE / UP	DATE		-	
											QA Closed	: Date	
Work Ord	er.					DISPOSITION				AGAINST DE	PARTMEN	T/PROCESS	
	•			·		Rework			Skid-tube	Crosstube		Water Jet	Engineering
Part	No.					Scrap	4		Machining	Small Fab		od. Eng. Coor.	Quality
NCR I	No.					Use-as-is Work Order Update	}		noforming Large Fab	Finishing Composite	Rec/Sto	ore/Packaging Supplier	Other
Root					Descri	ption of work order update		Initial	Ac	tion	Sign &		
Cause		Date	Step	Qty		or Non-conformance	Cr	nief Eng	Desc	ription	Date	Verification	QC Inspector
Doc/Data													
Equip/Tooling													
Operator													
Material													.
Setup													
Other													
Process									- €.				
Supplier			1										
Training													
Unapproved							<u> </u>						
						F	AUI	T CATE	GORY				
Landi	ng G	ear				General					_		
	Ш	Bending				Bend		Grain			Ovalized	L	Pressure/Forced
	Ш	Centre No	ot Concer	ntric to (o/s	BOM/Route	L	Hardwa	re		Over/Unde	r tolerance	Temperature/Cure
	\square	Cracks				Broken/Damaged		Inspecti	on Incomplete		Part Incorr	ect	Weld
		Crushed/	Crimped.			Burrs		Instruct	ions Incomplete/	'Unclear	Part Lost/N	Aissing	Wrong Stock Pulled
		Cuffs				Contamination *		Mainte	enance		Part Move	d	•

Mislabeled

Out of Calibration

Out of Sequence

Outside Dimensions

Misread

Offset

Positioned Wrong

Power Loss/Surge

Other

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Heat Treat

Inspection Strip in Tube

Torque Waves in Extrusion

Countersink

Cut Too Short

Drill Holes

Drawing

Finish

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

DART AEROSPACE LTD	Work Order:	B9477
Description: Crosstube Assembly	Part Number:	D407-667-145
Inspection Dwg: D407-667-145 Rev: C		Page 1 of 2

FIRST ARTICLE INSPECTION CHECKLIST

	spection Sheet awing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
	2.240	+0.005/-0.000	2.293			vern	comos
	1.865	+0.005/-0.000	1-870			1	·
\.	1.878	+0.005/-0.000	1.883	/			
4/3	1.970	+0.005/-0.000	1-975	/			
12.0	2.030	+0.005/-0.000	2.034		,,,,		
¥	2.165	+0.005/-0.000	2.169	/		P	
SIDE A	,			·			
S	0.125	+/-0.010	.125	J .		vern	cac-ob
	, R0.063	+/-0.010	-063	/		RG	
	₹R0 500	+/-0.010	,500	_/		11	
	R0.063	+/-0.010	-063	/		11	
	4.438 🔩 ,	+/-0.030	4446	/		vern	CNC-OS
	e de la companya de						
	2.240	+0.005/-0.000	2.243	~		vern	awc 08
	1.865	+0.005/-0.000	1.870	/] .	
	1.878	+0.005/-0.000	1.88.3				
	1.970	+0.005/-0.000	[975	<u>'</u>			
	2.030	+0.005/-0.000	2.634	~			
	2.165	+0.005/-0.000	2.169			<u> </u>	
E B							
SIDE	0.125	+/-0.010	1127			vern	cuc-08
	R0.063	+/-0.010	. 06 3	/		RG	•
	R0.500	+/-0.010	.500			11	
	R0.063	+/-0.010	.063	1		11	
	4.438	+/-0.030	4.440	/		vern	cwc-08
	113.20	+/-0.020	113.20	1		tope	60-08 60-02
						<u>'</u>	

												DQA:	Da	ate: _	
NCR:	Yes	/ No				WORK ORDER NON-C	10:	NFORM	MANCE / UP	DATE			_		
						· · · · · · · · · · · · · · · · · · ·						QA Closed:	Da	ate:	
Work Orde	er.					DISPOSITION		AGAINST DEPARTMEN					PROCESS		
Part N	No.					Rework Scrap Use-as-is Work Order Update	Machining Small Sm			Crosstube Small Fab Finishing Composite		Water Jet Prod. Eng. Coor. Rec/Store/Packaging Supplier			Engineering Quality Other
Root					Descri	ption of work order update	П	nitial	Ad	ction	Ŧ	Sign &			
Cause		Date	Step	Qty		or Non-conformance	Ch	ief Eng	Desc	cription		Date	Verification	on	QC Inspector
Doc/Data											7				
Equip/Tooling											İ				
Operator								-							
Material						,					١	;			
Setup														1	
Other															
Process									,						
Supplier											ļ			J	
Training															
Unapproved															
						FA	AUL	T CATE	GORY	_					
Landi	ng G	iear				General		_				_			_
	Bending					Bend		Grain				Ovalized			Pressure/Forced
-	Centre Not Concentric to O/S				o/s	BOM/Route		Hardwa	re			Over/Under	tolerance		Temperature/Cure
4	Cracks					Broken/Damaged		Inspection Incomplete				Part Incorre	ct		Weld
:		Crushed/0	Crimped,			Burrs		Instruct	ions Incomplete	/Unclear		Part Lost/Missing			Wrong Stock Pulled
	Cuffs					Contamination	Maintenance					Part Moved			

Mislabeled

Out of Calibration

Out of Sequence

Outside Dimensions

Misread

Offset

Positioned Wrong

Power Loss/Surge

Other

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Heat Treat

Inspection Strip in Tube

Torque Waves in Extrusion

Countersink

Cut Too Short

Drill Holes

Drawing

Finish Folio

H:/FORMS/Quality Assuranče\approved QA/NCRWO Rev G

DART AEROSPACE LTD

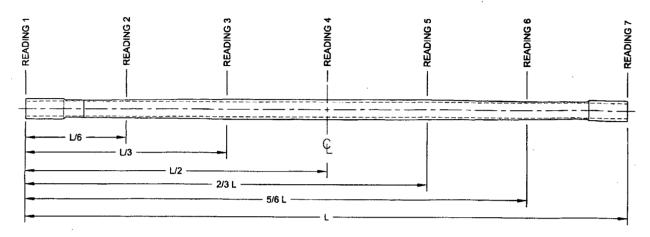
Description: Crosstube Assembly

Part Number: D407-667-145

Inspection Dwg: D407-667-145 Rev: C

Page 2 of 2

WALL THICKNESS MEASUREMENT



	WALL	THICKNESS	NT (IN)	Deviation		
Location	w1	w2	- w3	w4	Δw (max-min)	TOLERANCE
READING 1 L= 0"	:322	.331	.326	-320	.0(1	, .
READING 2	.165	.)76	160	. 150	.026	4,
READING 3	,236	,237	- 225	. 220	.017	
READING 4	.332	,329	,320	319	-013	/ . 0.042"
READING 5	231	- 226	223	.229	-008	
READING 6	-168	-158	-153	163	-015	
READING 7	. 328	,326	0318	.322	-010	

റം	lih	rati	an.	D.	 .14

Actual Block Thickness: ______
Sitescan 250 Measured Thickness: _____

Measured by:	mul	Audited by:	_ttv	Preliminary Approval:	
Date:	12/08/25	Date:	17-9-4	Date:	

Rev	Date	Change	Revised by Approved
Α	04.04.21	New Issue (P/O D407-667-105)	KJ/RF
В	06.03.09	Dwg Rev updated	KJ/JLM
С	09.06.11	Dwg Rev updated	KJ
D	11.06.21	Tolerance revised for 4.438 dimension	KJ 10 N
E	12.06.04	Wall thickness form added	KJ ON M

												DQA:	Date	e: _	
NCR:	Yes	/ No				WORK ORDER NON-O	CO	NFORI	MANCE / UP	DATE		•	_		
												QA Closed:	Date	2:	
Work Ord	er.					DISPOSITION				DE	PARTMENT	PROCESS			
Work ord						Rework	1		Skid-tube	Crosstube		Water Jet			Engineering
Part	No.					Scrap			Machining Small Fab			Pro	d. Eng. Coor.	┪	Quality
						` ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;			noforming	oforming Finishing Rec/Store/Packaging				Other	
NCR	No.					Work Order Update]		Large Fab	Composite			Supplier		
				,											
Root						ption of work order update	1	Initial	l .	tion		Sign &			
Cause	_	Date	Step	Qty	(or Non-conformance	Ch	nief Eng	Desc	ription		Date	Verification	_	QC Inspector
Doc/Data															
Equip/Tooling															
Operator														ł	
Material															
Setup															
Other															
Process														1	
Supplier]					l								
Training															
Unapproved															
						F	AUL	T CATE	GORY						
Land	ing (Gear				General		_				_	_		
		Bending				Bend		Grain	•		L	Ovalized		_	Pressure/Forced
Centre Not Concentric to O/S						BOM/Route	L	Hardwa	ire			Over/Under	tolerance		Temperature/Cure
1		Cracks				Broken/Damaged		Inspection Incomplete				Part Incorrect			Weld

Instructions Incomplete/Unclear

Maintenance

Out of Calibration

Out of Sequence

Outside Dimensions

Mislabeled

Misread

Offset

Part Lost/Missing

Positioned Wrong

Power Loss/Surge

Part Moved

Wrong Stock Pulled

Other

Ripples in Bend

Turning Sequence

Wave/Twist in Tube

Crushed/Crimped.

Inspection Strip in Tube

Torque Waves in Extrusion

Cuffs

Heat Treat

Burrs

Contamination

Countersink

Cut Too Short Drill Holes

Drawing

Finish

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Item	Qty -145	Part Number	Description
1	Х	D407-667-145	CROSSTUBE ASSEMBLY (407 HIGH FWD)
2	1	D6010-115	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2891-1	SUPPORT
6	4	D3595-063-395	RUBBER CUSHION
7	4	MS21920-20	CLAMP (OR MS21920-21)
8	14	MS20601AD4W10	RIVET (OR NAS9302B-4-10)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299- 947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6010-115
- FINISHED LENGTH = 113.20±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1 PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2 PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- UNITS: INCHES UNLESS OTHERWISE NOTED.
- BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- IDENTIFICATION: SCRIBE DART PART NUMBER "D407-667-145" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- WEIGHT: 17.8 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- RUN CUTTER OFF PART WHERE INDICATED, BLEND OUT EDGE LONGITUDINALLY. TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 6 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-20 CLAMPS (OR -21) WITH D3595-063-395 RUBBER CUSHIONS TO SECURE THE D2891-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

SHOP COPY RETURN 10 ENGINEERING UNCONTROLLED COPY SUBJECT TO AMENDMENT

WITHOUT NOTICE WORK ORDER NO. <u>8947</u> ルレブ

12/08/23

DEO ATTACHED

ECN#11-617

С	REORG TO CUP D3595-0 REMOV D2-3); R MOVED	REVISE GENERAL NOTES/PART LIST (ZN D7-1); REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS. D3595-083-395 WAS D2858-400-694 (ZN D6-2 & A5-2); REMOVED REF. 7 ADD TOLERANCES (ZN C6-3, C4-3, D2-3); RELOCATED FLAG #6 (ZN A6-3) PER NOR 210; MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4.												
8		DLES AND NUT HT/AA SKUDT	PLATES FOR COMPATABILITY UBES	PH	05.07.26									
Α	NEW IS	SSUE		CP	02.05.08									
REV.			DESCRIPTION	BY	DATE									
DESIGN	ı	P	DART AEROSP	ACE	LTD									
DRAWN	!	RF ₂	HAWKESBURY, ONTAF	RIO, CANA	DA									
CHECK	ED	\mathcal{A}^{r-}	DRAWING NO.		REV. C									
MFG. AF	PR.	E ~	D407-667-145	S	HEET 1 OF 4									
APPRO	VED	/us	TITLE SCALE											
DE APP	R.	-#	CROSSTUBE ASS'Y (407 HIGH FWD) NTS											
DATE	DATE 08.11.06 COPYRIGHT © 2002 BY DART AEROSPACE LTD THIS DOCUMENT IS TRIVIATE AND CONFIGURATION THE SOFTEN CONTROL THAT IT IS NOT TO BE USED FOR ANY PROPOSE ON COMPUTE ON THE EXPRESS ON WITHOUT													

NCR: Yes / No WORK ORDER NON-CONFORMANCE / UPDATE												Date	
Work Ord	er:					DISPOSITION Rework	7		Skid-tube		QA Closed: EPARTMENT,		
Part I	•					Scrap Machining Small Fab Use-as-is Thermoforming Finishing Work Order Update Large Fab Composite				Finishing	Pro Rec/Stor	Engineering Quality Other	
Root					Descri	ption of work order update		Initial	Action		Sign &		
Cause		Date	Step	Qty	(or Non-conformance	Ch	nief Eng	Descr	iption	Date	Verification	QC Inspector
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier Training Unapproved													
Landi	ing (ear				General							
	Bending Centre Not Concentric to O/S Cracks Crushed/Crimped. Cuffs Heat Treat Inspection Strip in Tube Ripples in Bend					Bend BOM/Route Broken/Damaged Burrs Contamination Countersink Cut Too Short Drill Holes		⊣ `	ion Incomplete ions Incomplete/U enance eled	Jnclear	Ovalized Over/Under Part Incorre Part Lost/M Part Moved Positioned V Power Loss/	ct issing Vrong	Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled Other
İ		Torque V	Vaves in E	xtrusio	n	Drawing	ing Out of Calibration						

Out of Sequence

Outside Dimensions

DQA:

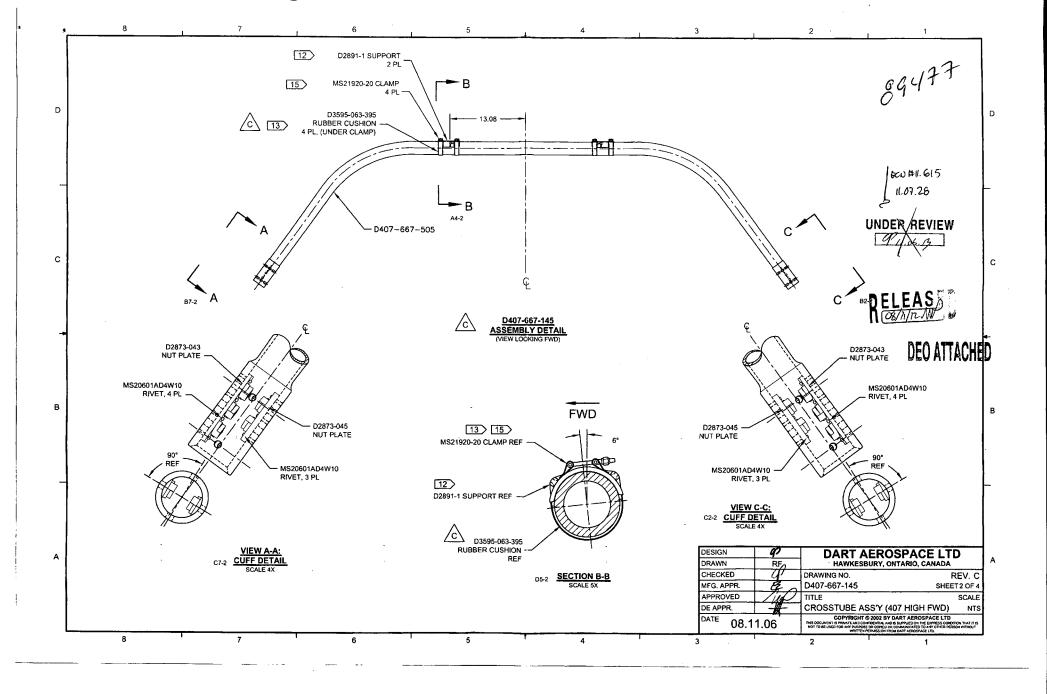
Date:

Turning Sequence

Wave/Twist in Tube

Finish Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G



NCR: Yes / No WORK ORDER NON-CONFORMANCE / UPDATE													
								· · · · · · · · · · · · · · · · · · ·			QA Closed:	Date	e:
Work Orde	er:					DISPOSITION			AG	AINST DE	PARTMENT	/PROCESS	
Part N	-					Rework Skid-tube Crosstube Scrap Machining Small Fab Use-as-is Thermoforming Finishing Work Order Update Large Fab Composite				all Fab	-	Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root					Descri	ption of work order update		Initial	Action		Sign &		
Cause		Date	Step	Qty	(or Non-conformance	Cr	Chief Eng Description			Date	Verification	QC Inspector
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier Training Unapproved	ng						ALI	LT CATE	GORY				
Landi	ng G	ear		•		General		LI CATE					
	Bending Centre Not Concentric to O/S Cracks Crushed/Crimped. Cuffs Heat Treat Inspection Strip in Tube Ripples in Bend Torque Waves in Extrusion					Bend BOM/Route Broken/Damaged Burrs Contamination Countersink Cut Too Short Drill Holes		Instruct Mainte Mislabe Misreac Offset	on Incomplete ions Incomplete/Unclear nance led		Ovalized Over/Under Part Incorre Part Lost/M Part Moved Positioned N Power Loss/	ct issing Vrong	Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled Other
		rorque W	raves in E	xtrusio	n	Drawing		Out of Calibration					

Out of Sequence Outside Dimensions DQA:

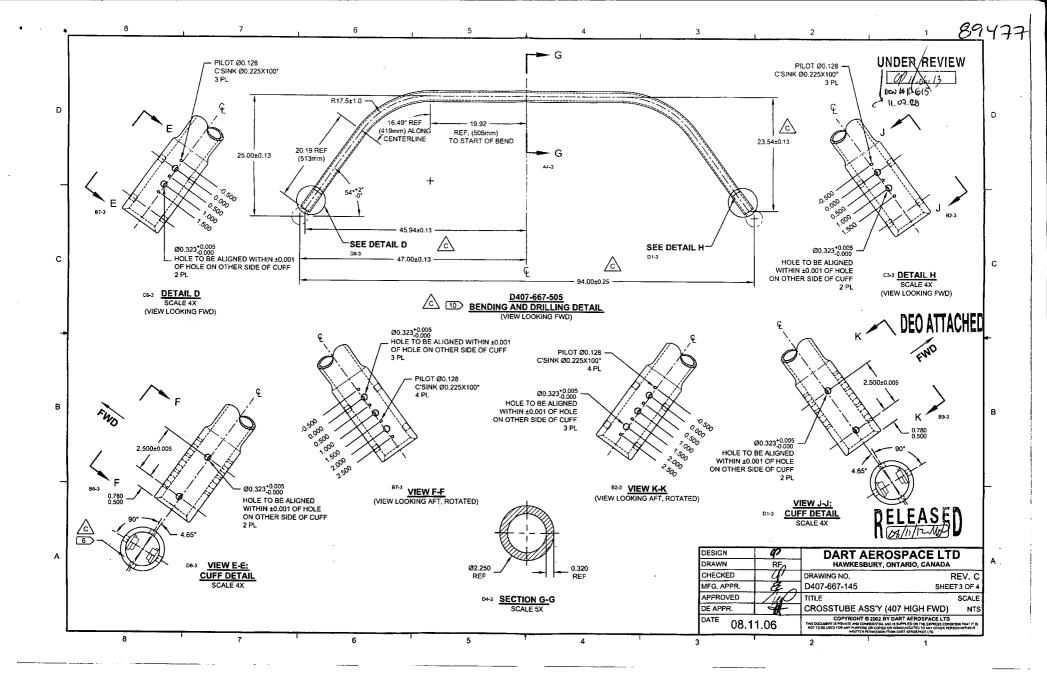
Date:

Turning Sequence

Wave/Twist in Tube

Finish

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

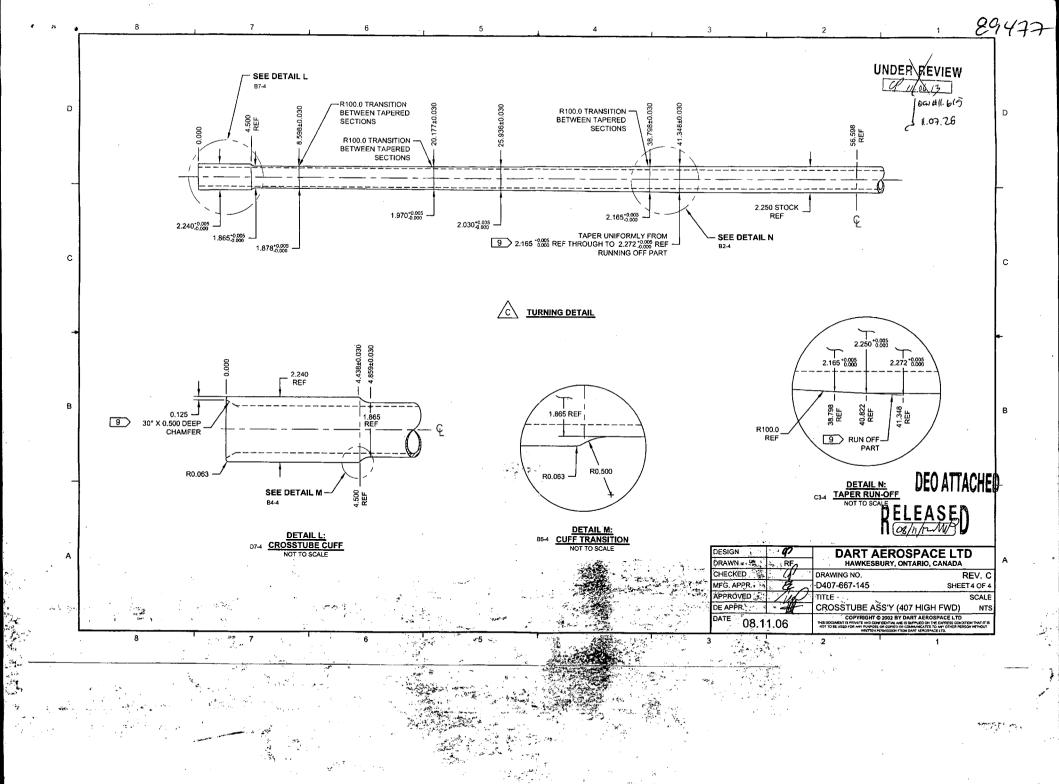


							•					DQA:	Date:	
NCR: Y	·													
												QA Closed:	Date:	
Work Orde	er:						DISPOSITION				AGAINST DE	PARTMENT	/PROCESS	
	•	-,					Rework]	Skid-tube Crosstube				Water Jet	Engineering
Part N	10.					ı	Scrap			Machining	Small Fab	ł	d. Eng. Coor.	Quality
							Use-as-is			noforming	Finishing	Rec/Sto	re/Packaging	Other
NCR N	10.				···········		Work Order Update			Large Fab	Composite		Supplier	
Root					Des	crip	ntion of work order update		nitial	Ac	tion	Sign &		
Cause		Date	Step	Qty		0	or Non-conformance Chief Eng Description					Date	Verification	QC Inspector
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Operator Associal Association														
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Other							•							·
rocess									-					
upplier									-					
raining														
Inapproved								<u> </u>				<u></u>		
·							F	AUI	T CATE	GORY				
Landi	_	1			ſ		General		,		_	7	<u> </u>	, i
		Bending					Bend	\vdash	Grain			Ovalized	<u> </u>	Pressure/Forced
		Centre No	ot Concer	ntric to (o/s		BOM/Route		Hardwa			Over/Under	 	Temperature/Cure
•		Cracks					Broken/Damaged	$oxed{\bot}$	4	on Incomplete		Part Incorre	 	Weld
		Crushed/0	Crimped.	•			Burrs	_	4	ions Incomplete	/Unclear	Part Lost/M	issing	Wrong Stock Pulled
		Cuffs.	Λ.				Contamination	<u></u>	Mainte			Part Moved		-
		Heat Trea					Countersink		Mislabe	led		Positioned \	` \ _	7
		Inspection		Tube			Cut Too Short	_	Misread	i		Power Loss/Surge Other		
:		Ripples in					Drill Holes Offset							
j		Torque W	aves in E	xtrusion	n		Drawing	Out of Calibration						
		Turning S	equence			Finish Out of Sequence								

Outside Dimensions

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Wave/Twist in Tube



											DQA:	Date	:
NCR:	Yes	/ No				WORK ORDER NON-C	100	NFORI	MANCE / UPD				
											QA Closed:	Date	•
Work Ord	er.					DISPOSITION				AGAINST DE	PARTMENT,	/PROCESS	
Part I	- No					Work Order Update			Skid-tube Crosstube Small Fab Thermoforming Finishing Composite			Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root					Descri	ption of work order update		Initial	Actio	on	Sign &		
Cause		Date	Step	Qty	(or Non-conformance	Ch	nief Eng	Descri	ption	Date	Verification	QC Inspector
Doc/Data													
Equip/Tooling													
Operator													
Material							Ì						
Setup	П		<u>.</u>										
Other	П						ĺ						
Process													·
Supplier													
Training	П												
Unapproved													
						F	AUL	T CATE	GORY				
Landi	ng G	iear				General							
		Bending				Bend		Grain			Ovalized		Pressure/Forced
	Centre Not Concentric to O/S					BOM/Route	Г	Hardwa	re		Over/Under	tolerance	Temperature/Cure
	Cracks					Broken/Damaged		Inspect	ion Incomplete		Part Incorre	ct	Weld
	П	Crushed/0	Crimped.			Burrs		Instruct	ions Incomplete/Ui	nclear	Part Lost/Mi	issing	Wrong Stock Pulled
	П	Cuffs	•			Contamination		Mainte	•		Part Moved	- L	_
	П	Heat Trea	t			Countersink	F-1 F-1					Vrong	

Misread

Out of Calibration

Outside Dimensions

Out of Sequence

Offset

Power Loss/Surge

Other

Ripples in Bend

Turning Sequence

Wave/Twist in Tube

Inspection Strip in Tube

Torque Waves in Extrusion

Cut Too Short

Drill Holes

Drawing

Finish Folio

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DRAWING NO.	TITLE	5514 6				
		REV. C DAR	RT AEROSPACE LTD	D.E.O. NO.	SHEET NO.	SCALE
	CROSSTUBE ASS'Y (407	HIGH FWD) EN	GINEERING ORDER	D407-667-145-C-1	SHEET 1 OF 1	NTS
DRAWN 97	CHECKED	MFG.	APPR.	APPROVED (A)	DE APPR.	
DATE 11.07.	15 DATE ///	07.22 DATE		DATE 11/07/22	DATE 11.07.21	*

PURPOSE:

REPLACE MAGNOBOND WITH PROSEAL.

CHANGE:

IS:

ltem	Qty -145	Part Number	Description
9	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

WAS:

9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

NOTE 12 & 15, SHEET 1 IS AMENDED AS FOLLOWS:

IS:

- 12) TO INSTALL D2891-1 SUPPORT: ABRADE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.04" TO 0.07" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.

WAS:

- 12) INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.



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WRITTEN PERSONSON FROM DART AEROSPACE LTD.

											DQA:	Date:	
NCR: Y	'es	/ No				WORK ORDER NON-C	ONF	FORN	AANCE / UP		QA Closed:	Date:	
Work Orde Part N NCR N	- lo					DISPOSITION Rework Scrap Use-as-is Work Order Update	AGAINST DEPARTMENT/PROCESS ework Skid-tube Crosstube Water Jet Engineeri Scrap Machining Small Fab Prod. Eng. Coor. Qual e-as-is Thermoforming Finishing Rec/Store/Packaging Oth						Engineering Quality Other
			1								G: 0		
Root					Descri	ption of work order update		itial		tion	Sign &		
Cause		Date	Step	Qty	(or Non-conformance	Chie	f Eng	Desci	ription	Date	Verification	QC Inspector
Doc/Data													
Equip/Tooling													
Operator													•
Material			l										
Setup												:	
Other													

Landing	Gear	General		_		
	Bending	Bend		Grain	Ovalized	Pressure/Forced
	Centre Not Concentric to O/S	BOM/Route		Hardware	Over/Under tolerance	Temperature/Cure
	Cracks	Broken/Damaged		Inspection Incomplete	Part Incorrect	Weld
	Crushed/Crimped_	Burrs		Instructions Incomplete/Unclear	Part Lost/Missing	Wrong Stock Pulled
	Cuffs	Contamination		Maintenance	Part Moved	
	Heat Treat	Countersink		Mislabeled	Positioned Wrong	
	Inspection Strip in Tube	Cut Too Short		Misread	Power Loss/Surge	Other
	Ripples in Bend	Drill Holes		Offset		
	Torque Waves in Extrusion	Drawing	Г	Out of Calibration		
	Turning Sequence	Finish		Out of Sequence		
	Wave/Twist in Tube	Folio		Outside Dimensions		

FAULT CATEGORY

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Process Supplier Training Unapproved

DRAWING	NO.	TITLE		REV. C	DART AEF	ROSPACEL	TD	D.E.O. NO.		SHE	ET NO.	SCALE
D407-66	67-145	CROSS	TUBE ASS'Y (40			RING ORDE			7-145-C-2		T 1 OF 3	NTS
DRAWN	Α	JS	CHECKED	4	MFG. APPR.	8	APF	PROVED	140	DE APPR.	4	
DATE	12.08.	.02	DATE	12.08.02	DATE	12.08.02	DAT	E	12.08.02	DATE	12.08 0	2

PURPOSE:

ADD ELECTRICAL GROUNDING STRAP

CHANGE:

ITEM	QTY -145	PART NUMBER	DESCRIPTION]
1	Х	D407-667-145	CROSSTUBE ASSEMBLY (407 HIGH FWD)	7
	<u> </u>		<u></u>	1
10	2	AN742D36	CLAMP	
11	2	MS9165-05	ANGLE BRACKET	1
12	2	MS21042L3	NUT (OR MS21042-3)	-AD
13	2	MS27039-1-08	SCREW	1
14	4	NAS1149C0332R	WASHER (OR AN960C10L)	1

GENERAL NOTES:

16) MASK AREA UNDER CLAMP PRIOR TO PAINTING

17) SEAL EDGES WHERE AN742D36 CLAMP MEETS WITH THE CROSSTUBE USING SIKAFLEX-241/-291 OR MIL-S-8802 CLASS B2 OR PROSEAL 890 SEALANT

18) PERFORM RESISTANCE CHECK TO ENSURE MAX RESISTANCE IS 10 MILLIOHMS



MS27039-1-08 AN742D36 D407-667-505 CROSSTUBE **SCREW** CLAMP 16 17 REF NAS1149C0332R WASHER MS9165-05 ANGLE BRACKET NAS1149C0332R WASHER MS21042L3 NUT 0.50 CROSSTUBE REF **DETAIL P** BONDING STRAP INSTALLATION 2 PL

- ADD

SECTION R-R

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NCR.	Vec	1	Nο

WORK ORDER NON-CONFORMANCE / UPDATE

DQA:	Date:		

	, ,							,		QA Closed:	Date	:
Work Orde	er.				DISPOSITION		AGAINST DEPARTMENT/PROCESS					
Part No			Rework Skid-tube Crosstube Scrap Machining Small Fab Use-as-is Thermoforming Finishing			Prod. Eng. Coor. Quality Rec/Store/Packaging Othe		Engineering Quality Other				
NCR	NO				Work Order Update	-		Large Fab	Composite	١,	Supplier	
Root		:		Descr	iption of work order update	In	itial	А	ction	Sign &.		
Cause	Date	Step	Qty		or Non-conformance	Chi	ef Eng	Des	cription	Date	Verification	QC Inspector
Doc/Data												
Equip/Tooling Operator		-			·						** • *** ** • ***	
Material			}		o*							
Setup	- '			.412							1	' , - .
Other							,		i e e e e e e e e e e e e e e e e e e e	1		
Process					Ŕ							
Supplier		İ										
Training Unapproved	H								Ž.		·	
	<u> </u>	1	•	 	F	AULI	CATE	GORY			•	<u> </u>
Landi	ng Gear .				General					: -		
•	Bending	'			Bend	\Box	Grain		Γ	Ovalized		Pressure/Forced
	Centre N	ot Conce	ntric to	o/s	BOM/Route		Hardwa	are	· [Over/Under	tolerance	Temperature/Cure
	Cracks				Broken/Damaged	П	Inspect	ion Incomplete		Part Incorre	ct	Weld -
	Crushed/	Crimped			Búrrs.		Instruct	tions Incomplete	e/Unclear	Part Lost/M	issing	Wrong Stock Pulled
			Contamination		Mainte	enance		Part Moved				
	Heat Trea	at .			Countersink		Mislabe	eled		Positioned V	Vrong	_
	Inspectio	n Strip in	Tube		Cut Too Short		Misrea	d		Power Loss/	Surge	Other
	Ripples in	n Bend			Drill Holes		Offset					
	Torque V	Vaves in I	Extrusio	n [Drawing		Out of	Calibration	•			
	Turning 9	Sequence			Finish		Out of :	Sequence	•			
	Wave/Twist in Tube				Folio		Outside Dimensions					

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